

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
Inquiry Concerning the Deployment of Advanced)	GN Docket No. 16-245
Telecommunications Capability to All Americans)	
In a Reasonable and Timely Fashion, and Possible)	
Steps to Accelerate Such Deployment Pursuant to)	
Section 706 of the Telecommunications Act of)	
1996, as Amended by the Broadband Data)	
Improvement Act)	

COMMENTS OF DEERE & COMPANY

Deere & Company ("Deere") hereby submits these brief comments in response to the Notice of Inquiry ("NOI") in the above-captioned docket.¹ Deere is a world leader in the manufacture of agricultural, construction, and forestry machinery, diesel engines, and other machinery equipment. It provides agricultural and other equipment and services to customers that cultivate, harvest, transform, enrich and build upon the land to meet the world's dramatically increasing need for food. Deere has delivered innovative equipment since 1837, and today, is pioneering state-of-the-art data and information solutions designed to greatly enhance productivity and environmental safety. Deere furnishes information and communications technology-integrated systems across all of its agricultural equipment line (as well as Deere's construction and forestry equipment). Machine-to-machine ("M2M") communications and machine-to-farm communications have become integral components of daily agricultural

¹ *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans In a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, Twelfth Broadband Progress Notice of Inquiry, FCC 16-100, GN Docket No. 16-245 (rel. Aug. 4, 2016).

operations. As such, modern agricultural operations increasingly require high-speed broadband. As a leading global supplier to the agricultural sector, Deere is intensely interested in the timely deployment of high-speed fixed and mobile broadband facilities in the nation's rural areas, and in particular, to areas of agricultural activity.

Deere appreciates the opportunity to bring its important real-world perspective to the Commission's attention as it considers "whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion." In the Commission's proceedings leading up to the 2016 Broadband Progress Report, Deere urged the Commission to view broadband availability through an additional lens--"one that incorporates a geographic and functional usage metric aimed at advancing broadband deployment to industries and economic activities where access to this key input has fallen behind."² Deere specifically urged the Commission to examine "cropland" coverage as a key indicator of where broadband deployment gaps exist, adopt multiple levels of broadband speeds, foster deployment of mobile services (including by ensuring support from the Connect America Fund and Mobility Fund Phase II), and middle mile facilities, and provide for stand-alone broadband.³ Since that time, the Commission has taken important steps on these issues but much work is left to be done. To that end, Deere offers its views on the pressing need to ensure that this inquiry, and Commission's actions that stem from it, do not leave out agricultural areas in critical need of improved access to fixed and mobile high-speed broadband.

² Comments of Deere & Company, at i, (filed Sept. 15, 2015) in *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans In a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, Eleventh Broadband Progress Notice of Inquiry, FCC 15-101, GN Docket No. 15-191 (rel. Aug. 7, 2015).

³ *Id.* at 15-26.

I. Growing Demand for High-Speed Broadband Requires An Assessment of Whether Services Are Available in Areas of Agricultural Activity Not Only Residential Sites.

Section 706 of the Telecommunications Act of 1996 requires the Commission to assess “whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion.”⁴ American farmers are no exception to the rule that those living in rural America need high-speed broadband in order to compete in the digital economy. Today’s U.S. farmers are compelled by long-term demand trends to achieve and sustain unprecedented high levels of productivity, by increasing yields and managing inputs with finite amounts of land and water. These trends are leading the transformation of production agriculture into a technology-driven sector increasingly dependent on access to fixed and mobile broadband.

In response to these market dynamics, agricultural producers, service providers, and equipment suppliers are intensely interested in expediting the deployment of high-speed fixed and mobile broadband services to rural areas where, by definition, farming, ranching, and other agricultural operations are concentrated. For many purposes, wireless service will be a necessary technology choice *in addition* to fixed broadband covering the farmhouse to achieve cost-effective coverage for many rural areas, including farm-intensive areas with significant tracts of cropland. Those areas, in particular, will benefit from the ability to make real-time data transfers that can minimize the amount of necessary seed, fertilizer and pesticides, reduce costs for fuel, labor, water, and dynamically identify best practices for fields in a given location.

The urgent need to address this shortfall was recently expressed in a letter to Chairman Wheeler by U.S. Senators Roger Wicker (R-MS) and Joe Manchin (D-WVA) and a bipartisan group of 24 other Senators representing states with significant rural areas and in which

⁴ 47 U.S.C. §1302(b).

agriculture is a major generator of economic activity.⁵ Those 26 Senators joined in highlighting the growing unmet demand and specifically urged the Commission to do more to address the need of rural Americans in the agricultural sector for high-speed broadband, including particularly mobile services:

“More than ever before, U.S. farmers and ranchers are demanding reliable, high-speed mobile broadband services. Mobility is essential for new precision agriculture technologies to deliver productivity gains and environmental sustainability. These technologies are transforming U.S. agriculture as American farmers and ranchers seek to feed, fuel, and clothe an ever-increasing global population using limited land, water, and other resources.”⁶

Deere agrees with the Commission’s general observation in its Section 706 evaluations since 2010 that rural areas do not enjoy access to advanced telecommunications services on par with urban areas. While there has been some progress, Deere respectfully submits that it is imperative for the Commission to take decisive action to respond to the need of rural Americans in the agricultural sector as expressed by the Senate letter and by other stakeholders,⁷ including by updating the way broadband availability in rural areas is assessed to include coverage, or the lack thereof, of rural agricultural areas.

This approach would better approximate coverage in urban areas where residential and business areas are closely situated. Without this adjustment in the way the Commission assesses rural coverage, Commission actions taken to address narrowly defined areas of identified need

⁵ Letter to Chairman Tom Wheeler, FCC, from United States Senators Wicker, Manchin, *et. al.* (July 11, 2016) (*Senate Letter*). A copy of the Senate letter is attached.

⁶ *Id.* at 1.

⁷ See, e.g., Ex Parte Notice of Rural Wireless Association in WT Docket No. 10-208, WC Docket No. 10-90 (filed Aug. 23, 2016) at 5, 6 (because a population-based metric overlooks agricultural and other centers, geographic measurement should be adopted in order for Commission to meet its statutory obligations); Ex Parte Notice from David LaFuria, Counsel for U.S. Cellular, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 10-208, WT Docket No. 10-90 (filed Feb. 25, 2016) attachment at 8, 21 (mobile broadband deployment is overstated in rural areas and Mobility Fund Phase II funding should focus more on roads and agricultural areas rather than residences).

will fall short of achieving full and meaningful access to advanced telecommunications services in the nation's rural communities.

II. The Commission Should Consider “Croplands” Not Only Residential Populations As A Key Indicator of Where Rural Broadband Deployment Gaps Exist in the United States

Over the years, the Commission has refined its evaluation of the Section 706 question to account for developing technology and performance expectations (with respect to speed, consistency, latency, etc.) but has assumed that it is sufficiently capturing the status of rural communities by examining the availability of advanced telecommunications capability in terms of *last-mile connections to residential consumer residences and schools*.⁸ This approach may assume that rural businesses in need of broadband are able to command the delivery of high-speed broadband,⁹ that they are geographically concentrated near dense population centers,¹⁰ do not need broadband, or are simply outside the Commission's public interest mandate.

It is Deere's experience that while fixed broadband has made some progress in penetrating the residential and small commercial areas of some rural communities, the cropland areas where farming occurs, still lag far behind in adequate fixed and mobile broadband access. As a practical matter, the Commission's current approach does not adequately account for the

⁸ See *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans In a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, Report, FCC 99-5, GN Docket No. 98-146 (Feb. 2, 1999) (“First Report and Order”), at 12 (Commission considers “residential” to be surrogate for small business customers and therefore “consumer market” includes small businesses as well as residential consumers.)

⁹ See *id.* at 11 and fn. 23 In the First Report and Order, the Commission stated that “[b]roadband services are available to most business customers-- and have been for years in many cases.” Explaining its reasoning, the Commission said “[i]n general business customers are less geographically dispersed than residential customers, use a greater volume of telecommunications, and are more lucrative to serve.” The First Report and Order does not review data supporting that conclusion specifically with respect to rural or agricultural areas.

¹⁰ *Id.*

pressing need for advanced telecommunications capability in active agricultural areas -- areas that are vital economic drivers for rural communities and the source of livelihoods for a majority of rural Americans. Where the Commission looks only at the level of service to residential populations, Commission actions and policies will overlook important needs in other parts of rural communities.¹¹ In this regard, Deere strongly agrees with the recent Senate letter:

“Croplands and ranch lands have lagged behind in adequate mobile coverage, even as demand for coverage has grown. To address this coverage gap, we urge you to consider a metric of broadband access in croplands (and farm buildings), or some other geographic measurement, in addition to road miles, to identify these areas of greatest need. “Cropland” coverage can be assessed using United States Department of Agriculture data for crop operations, the United States Geological Survey’s Land Use classification, or other databases.”¹²

Where areas of agricultural activity such as cropland and ranchland are excluded from consideration, the significant public interest benefits of broadband deployment that lie at the heart of Section 706, the National Broadband Plan, and the Commission’s many other efforts to facilitate such deployment will not be made fully available to the nation’s rural communities.¹³

¹¹ Deere agrees with the Rural Wireless Association’s view: “[a] straight population-based metric allows carriers to serve those in highly profitable population centers and leave residents in outlying areas underserved or not served at all. Further, a population requirement is not an appropriate metric for today’s wireless industry. It fails to accurately account for areas where there is great need for mobile broadband – like agricultural, energy production, and tourism centers – but where there are few permanent residents.” *See Ex Parte* Notice of Rural Wireless Association in WT Docket No. 10-208, WC Docket No. 10-90, WC docket No. 16-143, WT Docket No. 05-265 (Aug. 8, 2016) at 1-2.

¹² *Senate Letter* at 2.

¹³ The Commission has acknowledged that the “costs of digital exclusion are high and growing: lack of broadband limits healthcare, educational, and employment opportunities that are essential for consumer welfare and America’s economic growth and global competitiveness. In contrast, the widespread deployment and availability of broadband in many areas of the nation promotes a virtuous cycle of investment, innovation, and competition.” *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans In a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, Seventh Broadband Progress Report and Order on Reconsideration, FCC 11-78, GN Docket No. 10-159, (rel. May 20, 2016) at para. 4.

III. The Commission Should Consider Using the USDA's Data to Assess Broadband Availability in Areas of Cropland and Seek Coverage Information for Agricultural Areas through the FCC Form 477 Data Collection Process.

Deere urges the Commission to take advantage of the existing information and analysis of U.S. agriculture and cropland locations available through other agencies in constructing its deployment assessment. For example, the Commission could look to USDA's major crop mapping information, updated annually, which depicts crop operation boundaries by specific type of crop in the United States.¹⁴

At the same time, it is very important for the Commission to incorporate into its FCC Form 477 broadband data collection process, requests to carriers for information that would specifically identify fixed and mobile broadband coverage for agricultural operations, not just residential or household subscriber information. In this regard, Chairman Wheeler's comment introducing the 2015 Broadband Progress Report rings true: "What gets measured gets managed."¹⁵ Without adequate data collection, the Commission's Section 706 evaluation may continue to overlook significant rural areas for which access to advanced telecommunications capability is not being deployed to all Americans in a "reasonable and timely fashion."

¹⁴ See, e.g. <http://www.usda.gov/oce/weather/pubs/Other/MWCACP/namerica.htm>.

¹⁵ In introducing the 2015 Broadband Progress Report, Chairman Wheeler commented: "There's an old adage from my days in the private sector that, 'What gets measured gets managed.' Today's report offers a valuable assessment of U.S. broadband and will hopefully serve as an impetus for meaningful improvements in the speed and availability of true high-speed networks for all Americans." Statement of Chairman Tom Wheeler to *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans In a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, 2015 Broadband Progress Report and Notice of Inquiry on Immediate Action to Accelerate Deployment, FCC 15-10, GN Docket No. 14-126, at 3 (rel. Feb. 4, 2015).

IV. Conclusion

Deere appreciates the Commission's efforts to accelerate deployment of advanced telecommunications services and encourages consideration of the specific additional steps described in these comments.

Respectfully submitted,

/s/
Mark N. Lewellen
Manager, Spectrum Policy

Deere & Company
801 17th Street, N.W., 2nd Floor
Washington, DC 20006

Catherine Wang
Morgan, Lewis & Bockius LLP
2020 K Street, N.W.
Washington, DC 20006
Tel. (202) 373-6000
Fax (202) 373-6001

Counsel for Deere & Company

Dated: September 6, 2016

United States Senate

WASHINGTON, DC 20510

July 11, 2016

The Honorable Tom Wheeler, Chairman
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

Dear Chairman Wheeler:

As representatives of states with significant agricultural activity, we share the goal of ensuring that access to high-quality communications networks in rural America remains a top priority for the Commission.

More than ever before, U.S. farmers and ranchers are demanding reliable, high-speed mobile broadband services. Mobility is essential for new precision agriculture technologies to deliver productivity gains and environmental sustainability. These technologies are transforming U.S. agriculture as American farmers and ranchers seek to feed, fuel, and clothe an ever-increasing global population using limited land, water, and other resources.

We applaud the Commission's recent decision to allow rate-of-return carriers to access support for "standalone" broadband facilities. This step will help encourage carriers to deploy modern broadband-capable wireline networks in rural areas. Importantly, this is necessary as consumers increasingly rely on wireless services and are "cutting the cord" to shift away from wireline voice, and soaring mobile broadband relies on sufficient backhaul, often provided by these wireline networks. Going forward, sufficient support must also be available to preserve and expand mobile voice and broadband.

Significant work remains to ensure that broadband services are available in rural America and reasonably comparable to services enjoyed in urban areas. Simply stated, broadband, particularly high-speed mobile broadband, is not readily available in many rural areas or could be at risk absent the right policies and support through the Universal Service Fund (USF). While progress has been made in the deployment of broadband, significant portions of rural areas have been left behind. According to the FCC, 87 percent of rural Americans (52.2 million) lack access to mobile broadband with minimum advertised speeds of 10 Mbps/1 Mbps, compared to 45 percent of those living in urban areas.

Without the certainty that essential mobile broadband infrastructure will be deployed and maintained, investments in agricultural productivity will be delayed or bypassed altogether, and the potential efficiencies and benefits to rural communities will be lost. The extension of high-speed mobile and backhaul facilities to agricultural croplands and ranch lands must keep pace

with the ongoing deployment of technology in the field. Increasing numbers of modems in the field means a growing demand for connectivity in the areas in which they operate.


The expansion of rural broadband should be a top priority of federal and state policymakers, as expanded deployment in rural areas will address important economic, educational, health care, and public safety goals. Ongoing USF reform can provide a mechanism for enabling mobile broadband access in rural communities where “people live, work, and travel” that is truly comparable to broadband services provided in urban and suburban areas. To accomplish this goal, USF should support mobile broadband at a minimum of today’s level to close the coverage gap while preserving existing service.

In this regard, we ask you to give special attention as you work to establish Phase II of the USF’s Mobility Fund (MF). Given the importance of mobile services today, the MF should be retained and updated to ensure that funding will promote new mobile broadband deployment in unserved rural and agricultural areas and preserve and upgrade mobile broadband where it is currently available. Importantly, the FCC must rely on realistic measurements of network experience on the ground to determine areas to support.

Croplands and ranch lands have lagged behind in adequate mobile coverage, even as demand for coverage has grown. To address this coverage gap, we urge you to consider a metric of broadband access in croplands (and farm buildings), or some other geographic measurement, in addition to road miles, to identify these areas of greatest need. “Cropland” coverage can be assessed using United States Department of Agriculture data for crop operations, the United States Geological Survey’s Land Use classification, or other databases.

Agriculture is a significant generator of economic activity in our states. We greatly appreciate your efforts to ensure that the latest mobile broadband services are provided to all Americans, including those in agriculture whose livelihoods depend on it.

Sincerely,



ROGER F. WICKER
United States Senator



JOE MANCHIN, III
United States Senator



TAMMY BALDWIN
United States Senator



ROY BLUNT
United States Senator



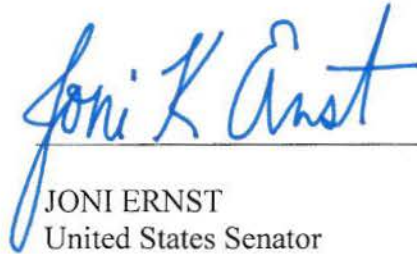
RICHARD BURR
United States Senator



SHELLEY MOORE CAPITO
United States Senator



STEVE DAINES
United States Senator



JONI ERNST
United States Senator



DEB FISCHER
United States Senator



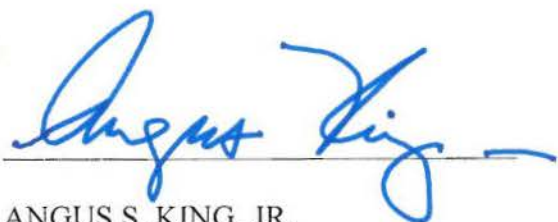
CORY GARDNER
United States Senator



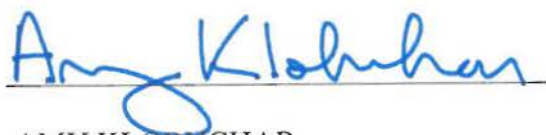
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United States Senator



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United States Senator



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United States Senator



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United States Senator



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United States Senator



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United States Senator



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United States Senator



THAD COCHRAN
United States Senator



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United States Senator



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United States Senator